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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/704,176	10/31/2000	Blaine D Gaither	10007099-1	2685

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EXAMINER

ELMORE, STEPHEN C

ART UNIT	PAPER NUMBER
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2186

DATE MAILED: 01/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

Applicant(s)

09/704,176

GAITHER ET AL.

Examiner

Art Unit

Stephen Elmore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-6,11 and 12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5,11 and 12 is/are rejected.
- 7) ☒ Claim(s) 2, 4 and 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10-31-2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

1. This Office action responds to the amendment filed October 22, 2003, paper number 9.
2. Claims 1, 2, 4-6, 11 and 12 remain for examination.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Drawings

4. New drawing, Figure 5, received in paper 9 is **approved**, however, the drawings remain objected-to for the following reasons which are repeated from the Office action mailed June 23, 2003, paper number 8.

5. The objections to the drawings under 37 CFR 1.83(a) are ***maintained*** because:

The drawings must show every feature of the invention specified in the claims.

Therefore, the following features identified in the first Office action must be shown or the feature(s) canceled from the claim(s).

- a. claim 11, *"(the step of) removing an address reference to a line, from the list, when the line has remained in the list for longer than a specified time";*
- b. claim 12, *"(the step of) removing an address reference to a line, from the list, even when the list is not full, to help prevent the list from filling";*
- c. claims 11 and 12, *"(the step of) updating the list only when (emphasis added) ownership of a line changes".*

No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

6. The rejections of claims 11 and 12 under 35 USC 112, first paragraph, are ***maintained***, and are repeated as follows.

7. Claims 11 and 12 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of maintaining cache coherency in a computer system,

for the scope of:

- i. an invention where the method includes updating the list (of address references) for all the lines that are owned for the condition where the ownership of a line changes, but the method also includes updating the list, i.e., when a line is removed, whenever that line has remained in the list for longer than a specified time, and further, also includes updating the list, i.e., when a line is removed, even when the list is not full, to help prevent the list from filling,

does not reasonably provide enablement for the scope of claims 11 and 12 including the feature:

- ii. updating the list only when (emphasis added) ownership of a line changes.

The teachings of the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and or use the invention commensurate in scope with claims 11 and 12 because, the scope of meaning that is given to the language "updating the list" includes the meaning of the activity "removing an address reference to a line" (as per claims 11 and 12) since the removing activity logically and necessarily updates the list by changing the list's contents, therefore, as discussed above, the scope of enablement as

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disclosed in the specification and claims is not commensurate with the scope of enablement as stated in claims 11 and 12 because updating the list does not only occur when ownership of a line changes.

Claim Rejections - 35 USC § 102

8. The rejections of claims 1 and 5 under 35 USC 102(b) *Cheng et al.*, USP 5,655,103, are ***maintained*** from the previous Office action, and are repeated below.

9. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Cheng et al., US Patent 5,655,103.

Cheng teaches the claimed computer system (claim 1) as a symmetrical multiprocessing system, comprising:

Claim 1,

a. a plurality of memory caches is taught, see Fig. 1, elements 101-103, and col. 2, lines 13-15;

b. a list containing an address reference for every line in the plurality of memory caches for which a corresponding line in memory may not be identical, is taught, see Fig. 1, element 109, as system directory, and col. 2, lines 18-21 and 27-31; and an indicator of which cache owns each line is also taught, see col. 2, lines 27-31;

c. the feature, the list not containing address references for lines that are shared or uncached, is taught since the list does not contain address references for lines that are uncached;

d. and the feature, the list not containing data corresponding to the address references, is also taught since the list only contains the address references and certain indicator bits shown in Fig. 3, element 109;

as to claim 5,

e. wherein the list is a single list shared by all the devices, this is taught since the element 109 is a single system directory (list) that is shared.

10. The rejections of claims 2 and 6 under 35 USC 102(b) are *withdrawn*.

Response to Amendment

11. Applicant's arguments filed October 22, 2003, paper 9, in response to the previous Office action have been fully considered but they are not persuasive for the following reasons.

As to the Remarks that:

Objections to the Drawings

a. claimed features of claims 11 and 12 are not required to be shown in the drawings
-- applicant states,

"drawings are not required for process or method claims. See MPEP 601.01(f)."

This position is not persuasive for multiple reasons:

1) First, the above statement is a mis-reading of the cited MPEP section,
because,

37 CFR 1.83(a) states:

§ 1.83 Content of drawing.

(a) The drawing in a nonprovisional application must show every feature of the

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invention specified in the claims (emphasis added). However, conventional features disclosed in the description and claims, where their detailed illustration is not essential for a proper understanding of the invention, should be illustrated in the drawing in the form of a graphical drawing symbol or a labeled representation (e.g., a labeled rectangular box).

Note that this rule contains no exception pertaining to method steps or processes, and further note that the cited MPEP reference pertains to the unrelated subject of --

"601.01(f) Applications Filed Without Drawings"

which is unrelated because this application was filed with drawings, therefore, since claimed method steps and processes are claimed features of the invention, Rule 1.83(a) says they must be shown in the drawings;

2) Second, the drawings already contain flowcharts representing method steps and processes of the claimed invention, i.e., Figures 1 and 2. Therefore, it is not reasonable to object to providing such drawings on the grounds that they are not required to be provided, since they are already provided as Figures 1 and 2;

35 USC 112, First Paragraph Rejections

b. As to the remarks pertaining to the 112, first paragraph rejections of claims 11 and 12, Applicant states that,

"From the specification, page 10, lines 20-26, owned lines may be removed from the GOTL (at which point they are no longer owned). Once evicted, a line is no longer owned, and ownership accordingly changes."

which is not persuasive because:

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1) it does not actually address the heart of the rejection which is that the scopes of both claims 11 and 12 includes the feature,

"updating the list only when (emphasis added) ownership of a line changes"

and, because:

2) the rejections pointed out that the "updating the list" feature is actually performed at other times (and corresponding events) than only when ownership of a line changes during the practice of the invention, therefore, the existing scopes of claims 11 and 12 are not supported under 112, first paragraph, because:

3) the claimed "only when" feature is therefore not present in the teachings of the disclosure, notwithstanding Applicant's above statement 1).

Applicant's further statement that "once evicted, a line is no longer owned, and ownership accordingly changes" misses the essential point of the rejection since the scope of Applicant's statement or position includes the time and event of an eviction in addition to the time and event of ownership changing ("from the specification, page 10, lines 20-26"), thereby, Applicant's own statement proves that in the scope of the invention as taught, the list is updated for more scope than only when ownership of a line changes. Also note that, the feature "only when ownership of a line changes" has the scope of one event, while "eviction of a line (owned lines may be removed)" and "ownership of a line changing" has the combined, larger scope of two events;

In conclusion, the scope of "updating the list only when ownership of a line changes," giving "only when" it's full meaning, is clearly of different scope than the scope argued by the applicant and taught in the disclosure, therefore, the 112, first paragraph, rejections are maintained;

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35 USC 102(b) Rejections

as to claim 1,

c. As to the remarks pertaining to the 102(b) rejection of claim 1 (Cheng), Applicant first states that,

- 1) *"Cheng et al. do not teach or suggest a list containing an address reference for every line in the plurality of memory caches for which the corresponding line in memory may not be identical."*

and in support of this assertion argues that:

- 2) entries in the dependency table (of Cheng) are created only in the event of a miss,

and that,

- 3) a requested line in the list is owned by CPU 102 and that this (example) line is not identical to the corresponding line in memory, but that however, an entry in the dependency table is created only after CPU 102 requests the line,

however, these statements and arguments are not persuasive because both arguments only amount to arguing features which are not claimed in claim 1, and since the scope of claim 1 does not mention or require anything in regard to the event of a miss or require any feature having to do with how the entry is to be created, therefore, in addition to arguing unclaimed features in paras. 2) and 3) above, the Applicant's arguments fail to support the statement in para. 1) above;

as to claim 5,

d. Applicant provided no arguments pertaining to the rejection of claim 5, therefore, no response is required.

Allowable Subject Matter

12. Claims 2, 4 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

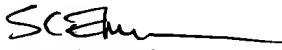
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Elmore whose telephone number is (703) 308-6256. The examiner can normally be reached on Mon-Fri from 7:30-4:00.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim can be reached on (703) 305-3821. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.


Stephen Elmore
Assistant Examiner
AU 2186

January 16, 2004


MATTHEW KIM
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